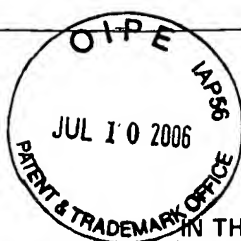**HEWLETT-PACKARD COMPANY**
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. __10015699-1__

(HDP#6215-000060/US)

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Matthias POPP et al.	**Confirmation No.:** 7936
Application No.: 10/043,562	**Examiner:** Pierre-Michel Bataille
Filing Date: 01-11-2002	**Group Art Unit:** 2186
Title: REMOTE MIRRORED DISK PAIR RESYNCHRONIZATION MONITOR	

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on __02-16-2006__ .

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

(X) (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d) for the total number of months checked below:

(X)	one month	$120.00	← **See attached check for $120.00**
( )	two months	$450.00	
( )	three months	$1020.00	
( )	four months	$1590.00	

( ) The extension fee has already been filled in this application.

(X) (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **08-2025** the sum of ___$500.00___ . At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

( ) I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450. Date of Deposit:_____

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( ) I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number_____ on _____

Number of pages:

Typed Name: (HAND CARRY)

Signature:_____

Rev 12/04 (Aplbrief)

Respectfully submitted,

Matthias POPP et al.

By _[signature]_

Thomas S. Auchterlonie

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Matthias POPP et al. CONF: 7936

SERIAL NO.: 10/043,562 GROUP: 2186

FILED: January 11, 2002 EXAMINER: Pierre-Michel Bataille

FOR: REMOTE MIRRORED DISK PAIR RESYNCHRONIZATION
MONITOR

APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. §41.37

Customer Service Window **July 10, 2006**
Randolph Building
401 Dulany Street
Alexandria, VA 22314
Mail Stop Appeal Briefs - Patents

Sir:

This is an Appeal Brief in response to the Final Rejection mailed November 16, 2005, of

Claims 1-34. A Notice of Appeal from this Final Rejection was timely filed on February 16,

2006 in connection with the filing of a Request For Pre-Appeal Brief Conference. Concurrently

but separately filed is a transmittal letter that includes an authorization to charge Deposit

Account No. 08-2025 for the requisite governmental fee for the filing of an Appeal Brief.

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TABLE OF CONTENTS

I.   REAL PARTY IN INTEREST

The real party in interest is The Hewlett-Packard Company ("HP"). The application is

assigned to the Hewlett-Packard Development Company, L.P. ("HPDC"), as evidenced by the

Assignment recorded at Reel 014061, Frame 0492. It is noted that HPDC is a wholly-owned

subsidiary of HP, thus making HP the real party in interest.

II.   RELATED APPEALS AND INTERFERENCES

Appellants' legal representative and Assignee are aware of no appeals which will directly

effect or be directly effected by or have any bearing on the Board's decision in this appeal.

III.   STATUS OF CLAIMS

Claims 1, 4-6, 11, 18, 20-22 and 24-34 stand finally rejected as stated in the outstanding

Final Office Action. Of those, claims 1, 18, 22, 31 and 32 are written in independent format.

It is the Final rejection of Claims 1, 4-6, 11, 18, 20-22 and 24-34 that is hereby being

appealed. A clean copy of the appealed claims 1, 4-6, 11, 18, 20-22 and 24-34 is attached in the

Claims Appendix.

IV.   STATUS OF AMENDMENTS

An Amendment was filed on August 29, 2005 and was entered on the record as

evidenced by the November 16th Final Office Action indicating on the Summary Page that it (the

Final Office Action) is responsive to the August 29th Amendment. No amendments have been

filed after the August 29th Amendment. Accordingly, no Amendments have been filed after the

February 16, 2006 Notice of Appeal.

V. SUMMARY OF CLAIMED SUBJECT MATTER

An embodiment of the present invention provides a method for monitoring mirroring

conditions of at least one of a pair of storage units. This embodiment will be discussed, e.g., in

terms of the example system block diagram of FIG. 3 and the example flowchart of FIG. 4. Such

a method includes: providing a machine-actionable memory (e.g., database 140; step 310)

having one or more machine-actionable records arranged according to a data structure (e.g.,

Paragraphs ("PGHs") 29, 33 & 36), the data structure including at least one status field the

contents of which are indicative of the status of a mirroring process of the at least one storage

unit pair, respectively; requesting (e.g., step 320; PGH 50) status information relating to the at

least one storage unit pair from mirroring software associated therewith; receiving (e.g., step

330) the requested status information; and automatically updating (e.g., PGH 32; step 355) the at

least one status field of the machine-actionable memory based upon the requested status

information.

An embodiment of the present invention provides another method for monitoring

mirroring conditions of at least one of a pair of storage units. This embodiment also will be

discussed, e.g., in terms of the example system block diagram of FIG. 3 and the example

flowchart of FIG. 4. Such a method includes: providing a machine-actionable memory (e.g.,

database 140; step 310) having one or more machine-actionable records arranged according to a

data structure (e.g., PGHs 29, 33 & 36), the data structure including at least one status field the

contents of which are indicative of the status of a mirroring process of the at least one storage

unit pair, respectively; requesting (e.g., step 320; PGH 50) status information relating to at least

one storage unit pair from mirroring software associated therewith; receiving (e.g., step 330) the

requested status information; automatically updating (e.g., PGH 32; step 355) the at least one

status field of the machine-actionable memory based upon the requested status information; and

automatically determining (e.g., step 350; PGHs 33-34) from the updated at least one status field

of the machine-actionable memory whether the mirroring process between storage units of the

storage unit pair has been suspended; and resynchronizing (e.g., step 360; PGH 34), in

conjunction with the mirroring software, the mirroring process between units of the storage unit

pair, upon determining that the mirroring process between storage units of the storage unit pair

has been suspended.

An embodiment of the present invention provides an apparatus for monitoring mirroring

conditions of a pair of storage units. This embodiment also will be discussed, e.g., in terms of

the example system block diagram of FIG. 3 and the example flowchart of FIG. 4. Such an

apparatus includes: a database (e.g., database 140), adapted to store monitoring information for

at least one storage unit pair and arranged at least in part according to a data structure (e.g.,

PGHs 29, 33 & 36), the data structure including at least one status field the contents of which are

indicative of the status of a mirroring process of at least one storage unit pair, respectively; and a

control unit (e.g., 130; PGH 25), operatively connected to the database and mirroring software

for the at least one storage unit pair, adapted to request (e.g., step 320; PGH 50) status

information relating to the at least one storage unit pair from mirroring software associated

therewith, to receive (e.g., step 330) the requested status information, and to automatically

update (e.g., PGH 32; step 355) the at least one status field of the data structure based upon the requested status information.

VI.   GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants request the Board to review the rejection of claims 1, 4-6, 11, 18, 20-22 and 24-34 under 35 U.S.C. §102(e), as being anticipated by U.S. Pre-Grant Publication (PGPub) 2004/0073831 ("the '831 PGPub") to Yanai et al.

VII.   ARGUMENTS

Initially, Appellants submit that claims 1, 4-6, 11, 18, 20-22 and 24-34 stand or fall together.

Among the rejected claims, it is noted that claims 1, 18, 22, 31 and 32 are written in independent format. For convenience, the following arguments will generally be couched in terms of, e.g., claim 1.

Statement of Issue

A claim element not literally disclosed is considered to be inherently present if the difference between a reference's literal disclosure and what is claimed "necessarily flows" from the literal disclosure. Here, taking the assertedly-anticipatory '831 PGPub as a whole, it is unreasonable (as explained below) to interpret 'automatic updating of a status field of the machine-actionable memory based upon requested status information' as necessarily flowing from it. How can the claimed element be considered inherent?

Discussion

Previously[1], Appellants argued that a distinction over the '831 PGPub of claim 1 (taking it as an example) is automatically updating the at least one status field of the machine-actionable memory based upon the requested status information.

The Examiner disagrees. On page 3 of the Final Office Action, he refers to Paragraphs [0348] and [0185] of the '831 PGPub and states (underlined emphasis added): "Simply, it is clear that user intervention is not required, as the remote mirroring status can be programmed for automatic resynchronization by the host application software." Appellants disagree. In particular, the Examiner's characterization that remote mirroring status "can be" programmed reflects that the '831 PGPub does not represent an anticipatory reference.

The portion of Paragraph [0348] focused upon by the Examiner states (underlined emphasis added):

> [0348] ... The host remote mirroring software commands may be integrated into automated operations or host applications, giving the user a robust and elegant implementation of remote mirroring with a great deal of flexibility and control.

This excerpt indicates that host remote mirroring software commands may be integrated into one of (1) automated operations or (2) host applications. Such commands are not integrated. Rather, they may be integrated. At most, this represents an invitation to experiment. Hence, the Examiner is constrained to state only that remote mirroring status "can be" programmed.

This shortcoming in the Examiner's reasoning possibly could be cured if the Examiner were to explain how the missing claimed feature was inherent to the '831 PGPub.

Under U.S. patent law[2], an aspect not literally disclosed by a reference is considered to be inherently present if the difference between what is literally disclosed and what is claimed necessarily flows from the literal disclosure. Here, it is unreasonable to assert that the claimed feature, namely, automatically updating the at least one status field of the machine-actionable

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[1]   The statement of rejection spans pages 5-10 of the Final Office (mailed November 16, 2005), with the Examiner's rebuttal arguments spanning pages 2-4 thereof.
[2]   For example, see the Manual of Patent Examining Procedure, Section 2112 in general, and particularly the subsection entitled "Examiner Must Provide Rationale Tending To Show Inherency".

memory based upon the requested status information, necessarily flows from the above-quoted

excerpt of Paragraph [0348] of the '831 PGPub. Nor does it necessarily flow from Paragraph

[0030] of the PGPub, which is another Paragraph focused[3] upon by the Examiner. The portion

of Paragraph [0030] focused upon by the Examiner states (underlined emphasis added):

> [0030] In accordance with yet another aspect of the invention, there is provided host remote mirroring software for permitting a system operator or host application program to monitor and control remote mirroring, migration, and recovery operations. ...

Such host remote mirror software permits either (1) a system operator or (2) a host application

program to monitor, control, etc. Which one enjoys this capability? That is, which of (1) the

system operator or (2) the host application program is enabled by the host remote mirror

software? If it happens to be the host application, then how is such capability made possible?

How is it enabled?

Perhaps the answer is found in Paragraph [0177] focused upon by the Examiner?

Paragraph [0177] of the '831 PGPub states:

> [0177] Each secondary (R2) volume has a configurable attribute, "sync required", for selectively preventing a secondary (R2) volume from becoming ready to the remote host if a state change is attempted while it is not synchronized with its primary (R1) volume. If the "sync required" attribute is not enabled, then all specified state changes to the secondary (R2) volume take effect when requested. If the "sync required" attribute is enabled, and if the secondary (R2) volume is not synchronized with the primary (R1) volume and not ready to the remote host at the time of the failure, then the non-synchronized secondary (R2) volume will remain not ready. Regardless of the state of the "sync required" attribute, if the secondary (R2) volume were synchronized with the primary (R1) volume and not ready to the remote host at the time of the failure, then the secondary (R2) volume will assume the specified change of state (read-only or read/write enabled).

It is not apparent to Appellants how Paragraph [0177] makes it possible for host remote mirror

software to permit a host application program to monitor, control, etc. as touted in Paragraph

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[3]   See page 4 of the Final Office Action.

[0030]. Nor it is reasonable to assert that the claimed feature necessarily flows from Paragraph [0177] of the '831 PGPub.

The Examiner also focuses upon a portion of Paragraph [0024], namely:

> [0024] Another aspect of the present invention provides mechanisms for selectively inhibiting automatic or manual recovery when automatic or manual recovery would be inappropriate. ...

Paragraph [0024] characterizes the recovery as automatic or manual. The mechanisms for selectively inhibiting, however, are not characterized as automatic. Such mechanisms, rather than the recovery, are relevant to the claimed feature, namely automatically updating the at least one status field of the machine-actionable memory based upon the requested status information.

Paragraph [0024] is consistent with Appellants' explanation[4] that monitoring has traditionally been done manually by the system operator. As noted in Appellants' Background Section (e.g., lines 35 et sec. at page 2):

> Traditionally, the administrator monitors the status of the disk pair as reported by the mirroring software; and thus the monitoring of disk pair status, the detection of any interruption in the mirroring process and repair thereof, or predominantly manual processes.

In other words, the administrator manually queries the disk pair for their respective status. Data indicative of that status is provided to the administrator in response to the query. The manner in which such status data is presented to the administrator is volatile as contrasted with data in a machine-actionable record of a memory. Such status data exists as an output on a display screen.

Taking the disclosure of the '831 PGPub as a whole, the overwhelming character is that of a manual monitoring system. Appellants have explained this previously[5] in the context of what Paragraphs [0366]-[0566], [0604], [0257]-[0268], [0286] and [0274] actually teach.

In view of the foregoing discussion, Appellants reiterate that a distinction of claim 1 over the '831 PGPub is automatically updating at least one status field of the machine-actionable

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[4]   See page 9 of the reply filed August 29, 2005.
[5]   See pages 10-12 of the reply filed August 29, 2005.

memory based upon the requested status information. The other rejected claims similarly
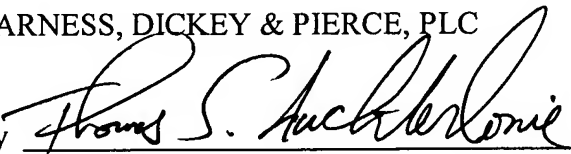
distinguish over the '831 PGPub.[6]

VIII. CONCLUSION

As it has been explained why an element of each claim does not necessarily flow from the assertedly-anticipatory reference taken as a whole, the §102 rejection based upon that reference is improper. Accordingly, Appellants again request the Board to reverse the Examiner's rejection and remand the application to the Examiner for either the preparation of a Notice of Allowability or a non-final Office Action.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-2025 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, PLC

By _____
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TSA/cm:tsa
Attachments: Claims Appendix (Claims Involved in Appeal)
Evidence Appendix
Related Proceedings Appendix

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[6]   Claims 4-7, 9-14 and 16-17 depend at least indirectly from claim 1 and distinguish over the '831 PGPub at least for the same reasoning, respectively. Independent claims 18, 22, 31 and 32 recite a similar feature to that of claim 1 discussed above, and hence each similarly distinguishes over the '831 PGPub. Claims 20-21, 24-30 and 33-34 depend at least indirectly from claims 18, 22 and 32, and thus distinguish over the '831 PGPub at least for the same reasoning as claims 18, 22 and 32, respectively.

CLAIMS APPENDIX

Claims 1, 4-6, 11, 18, 20-22 and 24-34 on Appeal:

1.   A method for monitoring mirroring conditions of at least one of a pair of storage units, comprising:

providing a machine-actionable memory having one or more machine-actionable records arranged according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of the at least one storage unit pair, respectively;

requesting status information relating to the at least one storage unit pair from mirroring software associated therewith;

receiving the requested status information; and

automatically updating the at least one status field of the machine-actionable memory based upon the requested status information.

4.   The method of claim 1 further comprising:

resynchronizing, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

5.   The method of claim 4, wherein resynchronization occurs only upon determining that automatic resynchronization of the storage unit pair has been enabled.

6.   The method of claim 5, wherein the data structure further includes a field representing an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

11.   The method of claim 1, wherein the machine-actionable memory includes instances of the data structure for a plurality of storage unit pairs, respectively, and wherein

status information for each storage unit pair is requested, and mirroring conditions of each storage unit pair are monitored.

18.   A method for monitoring mirroring conditions of at least one of a pair of storage units, comprising:

providing a machine-actionable memory having one or more machine-actionable records arranged according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of the at least one storage unit pair, respectively;

requesting status information relating to at least one storage unit pair from mirroring software associated therewith;

receiving the requested status information;

automatically updating the at least one status field of the machine-actionable memory based upon the requested status information; and

automatically determining from the updated at least one status field of the machine-actionable memory whether the mirroring process between storage units of the storage unit pair has been suspended; and

resynchronizing, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between storage units of the storage unit pair has been suspended.

20.   The method of claim 18, wherein resynchronization occurs only upon determining that automatic resynchronization of the storage unit pair has been enabled, and wherein the data structure further includes an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

21.   The method of claim 18, wherein the data structure includes at least one field representing at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval, respectively.

22.   An apparatus for monitoring mirroring conditions of a pair of storage units, comprising:

a database, adapted to store monitoring information for at least one storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively; and

a control unit, operatively connected to the database and mirroring software for the at least one storage unit pair, adapted to request status information relating to the at least one storage unit pair from mirroring software associated therewith, to receive the requested status information, and to automatically update the at least one status field of the data structure based upon the requested status information.

24.   The apparatus of claim 36, wherein the control unit is further adapted to resynchronize, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

25.   The apparatus of claim 36, wherein the control unit is adapted to resynchronize only upon determining that automatic resynchronization of the storage unit pair has been enabled.

26.   The apparatus of claim 25, wherein the data structure further includes a field representing an autorecover flag, indicating whether or not automatic resynchronization has been enabled.

27.   The apparatus of claim 22, wherein the database is adapted to store at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval.

28.   The apparatus of claim 22, wherein the database includes instances of the data structure for a plurality of storage unit pairs, respectively, and wherein status information for each storage unit pair is requested, and mirroring conditions of each storage unit pair are monitored.

29.   The apparatus of claim 28, further comprising:

an interface, operatively connected to the database, for adding monitoring information for additional pairs of storage units.

30.   The apparatus of claim 22, further comprising:

an interface, operatively connected to the database, for varying stored monitoring information.

31.   An apparatus for monitoring mirroring conditions of a pair of storage units, comprising:

a database, adapted to store monitoring information for at least one storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively; and

a control unit, operatively connected to the database and mirroring software for at least one storage unit pair, adapted to request status information relating to the at least one storage unit pair from mirroring software associated therewith, to receive the requested status information, to automatically update the at least one status field of the data structure based upon the requested status information, to automatically determine the status of a mirroring process from the updated at least one status field of the data structure, and adapted to resynchronize in conjunction with the mirroring software, the mirroring process between storage units of the storage unit pair, upon determining that the mirroring process between storage units of the

storage unit pair has been suspended and upon determining that automatic resynchronization of the storage unit pair has been enabled.

32.   A system for monitoring mirroring conditions of at least one pair of storage units, comprising:

a mirroring software system, adapted to automatically obtain status information on mirroring conditions of the at least one pair of storage units; and

an apparatus, adapted to automatically monitor mirroring conditions of the at least one pair of storage units in conjunction with the mirroring software system, the apparatus including,

a database, adapted to store monitoring information for the storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively, and

a control unit, operatively connected to the database and mirroring software for the pair of storage units, adapted to request status information relating to the at least one storage unit pair from the mirroring software system, to receive the requested status information, and to automatically update the at least one status field of the data structure based upon the requested status information.

33.   The system of claim 37, wherein the control unit is further adapted to resynchronize, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended.

34.   The system of claim 37, wherein the control unit is adapted to resynchronize only upon determining that automatic resynchronization of the storage unit pair has been enabled.

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EVIDENCE APPENDIX

NONE

APPELLANT'S BRIEF ON APPEAL UNDER 37 C.F.R. §41.37
U.S. Application No.: 10/043,562
Atty. Docket: 10015699-1
(HDP#6215-000060/US)

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RELATED PROCEEDINGS APPENDIX

NONE